

# The FRASCA 121

the industry standard for low-cost flight simulation



Flight schools, corporations, and governments share a common dilemma when it comes to training pilots. The skyrocketing price of aviation fuel and other costs of flying mean that using conventional aircraft for flight training simply isn't profitable any more.

So that's why we developed the Frasca 121 single engine trainer. The Frasca 121 can have performance parameters to match almost any kind of single engine aircraft in the sky. It will give you a single switch for choosing fixed pitch or constant speed propeller. And of course it comes complete with retractable landing gear.

The 121 is not only accurate; it's also affordable. If your operation is big enough to own or lease a single engine general aviation plane, you're big enough to use a Frasca 121. And while you're busy using your Frasca to put better pilots in the sky, you'll also be putting more profit in the bank.

Equally important, Frasca simulators are built to last, with a proven reputation for reliability in the field. So that kind of quality means more than just low maintenance costs. It means your Frasca will be worth more when it comes time to sell. And that matters if you're concerned with things like return on investment and lease potential.

If you're thinking about using flight simulation to improve the quality of training while you boost the bottom line, just let us know. We'll show you why you can't afford to settle for less than a Frasca.



# The 121 Flight Simulator

## Instrument Panel

The instrument panel of the Frasca 121 accurately reproduces the cockpit environment of a general aviation single engine airplane. Here's a list of our standard features:

- Airspeed indicator
- Attitude indicator
- Altimeter (three-needle sensitive, with barometric adjustment)
- Turn coordinator
- Directional gyro
- Vertical speed indicator
- Engine tachometer
- Manifold pressure gauge
- 8-day clock
- Hobbs meter
- Fuel quantity gauge, left & right
- Cylinder head temperature gauge
- Engine oil temperature gauge
- Engine oil pressure gauge
- Ammeter
- Master switch
- Fuel selector switch
- Autopilot (attitude freeze)
- Pitot heat switch
- Elevator trim indicator
- Flap selector
- Landing gear selector
- Mag/start switch
- Parking brake control
- Headphone jack
- Microphone jack
- Audio control panel (with marker lights)
- NAV 1/course deviation indicator (with glide slope)
- NAV 2/course deviation indicator
- ADF tuner
- RMI
- NAV/COMM 1 tuner
- NAV/COMM 2 tuner
- Transponder
- Digital DME

## Flight Computer Performance Capabilities

The 121 features Frasca's New Generation Flight Computer, a system unduplicated in the industry . . . so unique and flexible that no other system even comes close. It's based on state-of-the-art, high-speed computers . . . simple in design but able to deliver more of the capability you need in a flight simulator. So for a start, you get easier maintenance and lower operating costs.

But the real measure of any flight simulator is accurate instrument performance. You sense accuracy during start-up procedures and taxi maneuvers . . . take-offs and landings are realistic . . . and that's just the beginning.

With the Frasca New Generation Flight Computer, control response varies with airspeed, all the way down to minimum controllable airspeed, just as it would in actual flight. Stalls are accurately simulated, with stall speed varying according to angle of bank and degree of flap extension.

Once aloft, elevator trim neutralizes control pressure. For any given angle of bank, rate of turn is inversely proportional to airspeed. Flight on the back side of the power curve is realistic. Changes in gross weight and center of gravity (manipulated from the instructor's console) affect flight response and stability.

True airspeed and total performance are sensitive to altitude. And, unlike many systems, the Frasca system computes total thrust based on manifold pressure and RPM taken together.

With the engine out, the student can deadstick the trainer to a landing, or leave the prop windmilling.

Also included is the system for duplicating phugoid oscillation, or inherent stability, developed by Frasca over twenty years ago. In short, we've designed a system that gives you the accuracy you need to maximize teaching potential.

### Long-term flexibility . . .

One of the most impressive considerations about the New Generation Flight Computer is that it's designed for change.

That means your Frasca can be modified to perform like almost any aircraft sold today . . . or tomorrow. As your fleet changes, so can your Frasca, an important point when you consider that Frasca flight simulators have a reputation for long life in the field.

So before you seriously consider any other kind of flight simulator, remember that Frasca gives you more than just a simulator . . . we give you a system.

## Instructor's Console

The instructor's console is a four-panel design featuring a radio station control panel, an audio panel, a systems panel, and an engine panel. The radio station control panel allows the instructor to duplicate radio navigation areas for any part of the world. The instructor can change station type and location at any time—even during an instructional period. The audio panel controls communications between the student and the instructor. The instructor can use the systems panel to generate navigational failures, aircraft systems failures, or manipulations of environmental factors such as wind speed, wind direction, and barometric pressure. The engine panel allows for engine-related failures.

### Radio Station Control Panel

- Position null meter and selector
- Eight controls for station type (VOR, ADF, VORTAC)
- Eight pairs of controls for radio station position
- Eight radio station frequency selectors
- Two ILS selectors
- Two outer marker selectors
- Two middle marker range selectors
- Two sets of glide slope angle controls
- Field elevation control

### Audio Panel

- Volume control
- Speaker on/off
- Push-to-talk button
- Microphone jack
- Headphone jack
- COMM 1/COMM 2 selector

### Systems Panel

- Wind control up to 80 kts (infinitely variable direction)
- Barometric pressure control (sea level pressure 29.40" to 30.40")
- Failure controls:
  - Instructor control of altitude and heading
  - Total freeze or independent axis freeze
  - Gross weight variations
  - CG variations
  - Marker beacon failure
  - Glide slope failure
  - NAV 1 & 2 failure
  - ADF failure
  - DME failure
  - Pitot ice

### Engine Panel

The instructor determines whether the 121 will fly with a fixed pitch prop or constant speed prop.

- Failure controls:
  - Total engine failure
  - Ammeter variations
  - Cylinder head temperature variations
  - Oil pressure variation
  - Fuel quantity variation (left & right)

## Ground Path Recorder

- X-Y plotter with site setting and instructor's controls
- Scale of 1" = 2.5 nm
- Plotting area of 60 x 85 nm

## Optional Equipment

You can order your Frasca 121 with options. Special configurations, equipment, or performance characteristics are usually no problem. Here is a list of normal options to choose from:

- Altimeter measuring in milibars\*
- Turn and slip indicator\*
- Push-pull engine controls\*
- Dual needle RMI
- Glide slope on NAV 2
- Collins PN-101 horizontal situation indicator
- Collins FD-112V flight director
- EGT indicator
- Fuel flow indicator
- Engine sound effects
- Turbocharged engine
- Spares and tool kit

\*no extra cost

## Power Requirements

110 V, 50 or 60 HZ, less than 5KVA (normally less than a desk-top copier).

## Prices

Price schedules and other information available on request.

# FRASCA

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